

ABSTRACT

A rainfall-runoff modeling is nowadays a dynamically developing department of hydrology and water management. This development is caused by a rapid progress of computers and information technologies. This evolution provides the mankind with new possibilities to use water as its basic need and at the same time to evolve an effective protection against it. The aim of this thesis is to give some basic information about rainfall-runoff modeling, various approaches to it, methods and possibilities of application. To achieve this aim a concrete hydrologic model was chosen and with its help a rainfall-runoff processes in a small catchment of Černá voda in Krušné hills was simulated.

Three runoff events were chosen as calibration periods (for model adjustment). These events represent three different reasons causing floods (or better to say discharge enhancement). One of them was caused by a rain storm and its consequence was a flash flood in the catchment. The second one was typical long-time rain which caused extremely strong discharge response. The last one was a spring flood that occurred after a sudden snow melting. At the end a calibrated model was verified in flashflood that happened in July 2002.